

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A device for delivering liquid via a flow channel comprising:

a reusable component and a disposable component adapted to mate with the reusable component, wherein:

the disposable component includes:

a **disposable component specific** flow channel; and

a memory having one or more empirical stored values indicative of at least one of an empirical flow property and an empirical geometric property of the **exact same disposable component specific** flow channel **included in the disposable component**;

the reusable component includes:

a controller adapted to read the one or more empirical stored values from the memory while the disposable component is mated to the reusable component, and generate a flow control signal based on the one or more empirical stored values; and

the device includes a valve responsive to the flow control signal adapted to control flow of the liquid through the flow channel.

2. (Previously Presented) The device of claim 1, wherein the one or more empirical stored values are based on empirical data relating to the flow channel mated to the reusable component of the device.

3. (Cancelled)
4. (Original) The device of claim 1, wherein the flow channel is part of an infusion set and the controller is part of a flow regulator coupled to the infusion set.
5. (Previously Presented) The device of claim 1, wherein the empirical geometric property is indicative of a physical characteristic of the flow channel.
6. (Previously Presented) The device of claim 5, wherein the physical characteristic is selected from the group consisting of an effective cross-sectional area of the flow channel, an effective radius of the flow channel, an effective height of the flow channel, an effective width of the flow channel, and an effective diameter of the flow channel.
7. (Previously Presented) The device of claim 1, wherein the empirical flow property is indicative of a volumetric flow rate value of a fluid previously passed through the flow channel.
8. (Previously Presented) The device of claim 1, wherein the empirical flow property is indicative of a velocity of a fluid previously passed through the flow channel.
9. (Original) The device of claim 1, wherein the valve is a proportional valve.

10. (Original) The device of claim 1, wherein the valve is an on/off valve.

11. (Original) The device of claim 4, wherein the flow regulator is adapted to be uncoupled from the infusion set.

12. (Previously Presented) The device of claim 1, wherein the device comprises a time-of-flight sensor.

13. (Previously Presented) The device of claim 1, wherein the controller is adapted to receive data relating to a viscosity of a liquid that will be passed through the flow channel.

14 – 30. (Cancelled)

31. (Previously Presented) A device for delivering liquid via a flow channel, the device comprising:

a reusable component and a disposable component adapted to mate with the reusable component, wherein:

the disposable component includes:

a **disposable component specific** flow channel; and

a memory having one or more empirical stored values respectively based on a product of least one of (i) an empirical volume and an empirical time, (ii) an empirical flow rate and an empirical velocity, and (iii) an empirical area and an empirical

velocity, related to the exact same disposable component specific flow channel included in the disposable component; and

the reusable component includes:

a controller adapted to read the one or more empirical stored values from the memory while the disposable component is mated to the reusable component, and generate a flow control signal based on the one or more empirical stored values;

wherein the device is adapted to at least one of transfer one or more of the empirical stored values from the memory and permit reading of the one or more of the empirical stored values, and wherein the device is adapted to determine a volumetric flow rate of a liquid flowing through the flow channel based on the one or more empirical stored values.

32. (Original) The device of claim 31, wherein the device is adapted to enable the volumetric flow rate to be determined to within 1% of its actual value.

33. (Original) The device of claim 32, wherein the device is adapted to enable the volumetric flow rate to be determined to within 0.75 % of its actual value.

34. (Original) The device of claim 33, wherein the device is adapted to enable the volumetric flow rate to be determined to within 0.5 % of its actual value.

35. (Original) The device of claim 34, wherein the device is adapted to enable the volumetric flow rate to be determined to within 0.25 % of its actual value.

36. (Original) The device of claim 35, wherein the device is adapted to enable the volumetric flow rate to be determined to within 0.1 % of its actual value.

37. (Original) The device of claim 31, wherein the device is adapted to enable the volumetric flow rate to be determined without utilizing actual dimensions of the interior of the flow channel.

38. (Previously Presented) The device of claim 37, wherein actual dimensions include design dimensions.

39. (Previously Presented) The device of claim 1, wherein the one or more stored empirical values are based on empirical data obtained during manufacture of the flow channel of the device, the one or more stored empirical values being stored in the memory during manufacture of the disposable component.

40 – 42. (Cancelled)

43. (Original) The device of claim 31, wherein the flow channel and memory are parts of an infusion set.

44 – 59. (Cancelled)

60. (Previously Presented) The device of claim 1, wherein the reusable component comprises a flow sensor adapted to measure properties of liquid flow in the flow channel.

61. (Previously Presented) The device of claim 1, wherein the reusable component comprises a flow sensor adapted to measure a velocity of liquid flow in the flow channel.

62. (Previously Presented) The device of claim 61, wherein the flow sensor is a thermal time of flight sensor.

63. (Previously Presented) The device of claim 62, wherein the thermal time of flight sensor comprises a first source adapted to introduce a thermal marker into the liquid flowing in the flow channel, a second source adapted to illuminate the liquid flowing in the flow channel and a detector adapted to measure a change in illumination from the second source that passes through the flow channel as a result of the passage of the thermal marker through the illumination from the second source.

64. (Previously Presented) The device of claim 1, wherein the flow channel has a rectangular cross-section.

65. (Previously Presented) The device of claim 1, wherein the empirical flow property is indicative of a time of flight of a fluid previously passed through the flow channel.

66. (Previously Presented) The device of claim 1, wherein the memory includes information indicative of lot number of manufacture, date of manufacture, location of manufacture, article number within the lot number of manufacture, and time of manufacture of the disposable component.

67. (Previously Presented) The device of claim 1 wherein the reusable component has been programmed to deliver the liquid according to a desired delivery regimen and the controller is adapted to control the valve to achieve the desired delivery regimen using at least one of the stored flow properties and the geometrical properties.

68. (Previously Presented) The device of claim 67, wherein the delivery regimen is a desired flow rate as a function of time or a desired volume of liquid to be delivered in a desired time interval.

69. (Currently Amended) The device of claim 31, wherein the device is adapted to determine the volumetric flow of **[[a]] the** liquid flowing through the flow channel based on the one or more empirical stored values when multiplied by a time of flight of the liquid.

70. (Previously Presented) The device of claim 1, wherein the empirical flow property is based on at least one of an empirical fluid volume previously passed through the flow channel for a given time and an empirical flow rate of a fluid previously passed through the flow channel.

71. (New) The device of claim 31, wherein the empirically stored value is indicative of a time of flight of a fluid previously passed through the flow channel.